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ELECTRONIC INFORMATION & COMMUNICATION SERVICES

- UK MARKET INFORMATION

A STUDY

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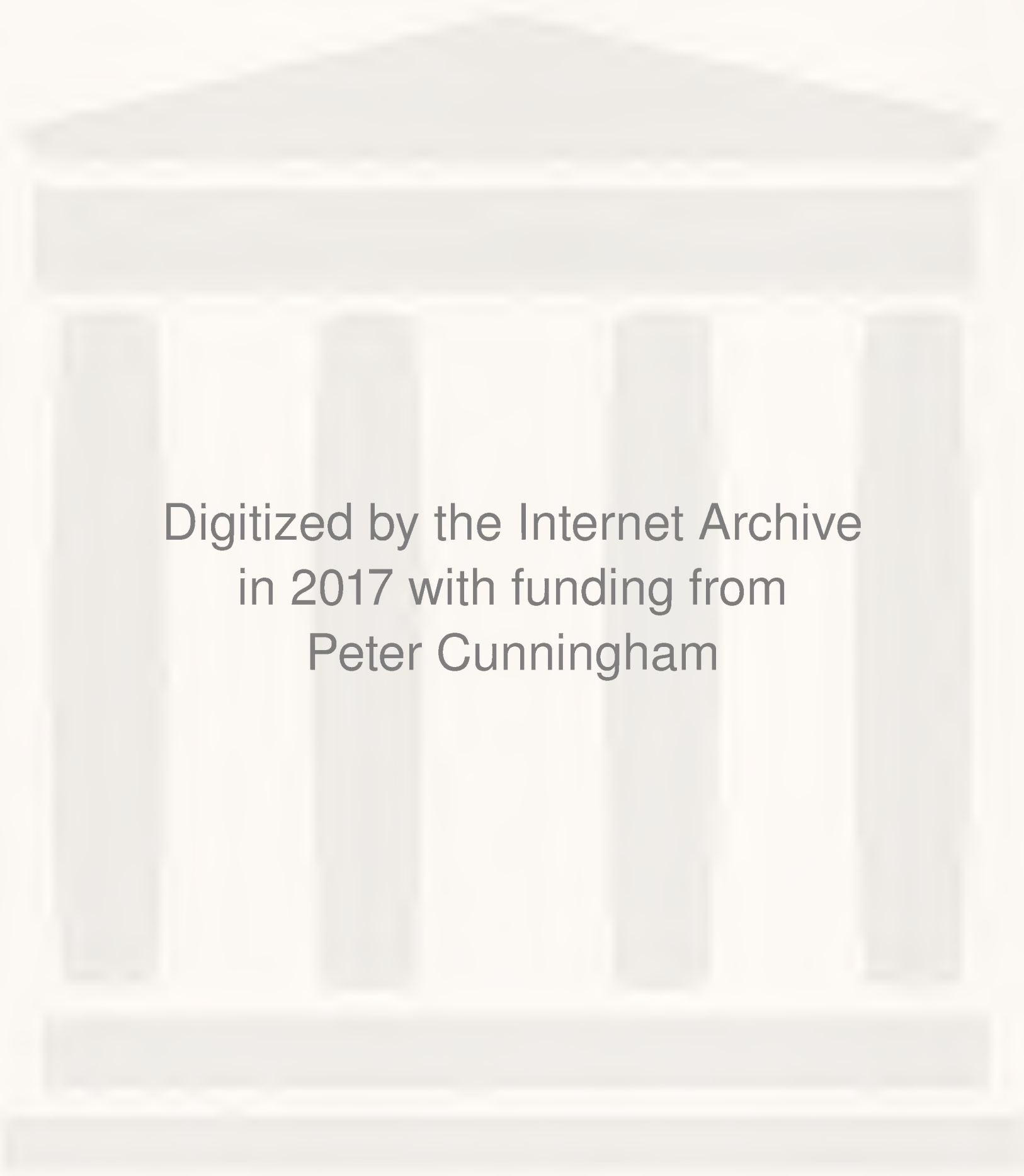
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# ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES

## - UK MARKET INFORMATION

### ABSTRACT

This report, prepared specifically for the Strategic Planning Unit of the National Westminster Bank during March 1988, contains data and information about the electronic information and communications services market in the UK. It includes an overall commercial and management assessment of its future development.

This is an emerging market which is consequently difficult to define, sometimes loosely referred to as the VANS (Value Added Network Services) or VADS (Value Added and Data Services) Market it is specifically defined in this report as comprising the following principal sectors:

- Managed Data Network Services
- Electronic Mail
- Electronic Data Interchange
- On-Line Information Services
- Transaction Processing
  - Electronic Markets
  - Funds Transfer
  - Principal/Agent
  - Non-Financial Transactions
  - Home Services
- Application Processing

The report includes an assessment of each of these sectors and information about the leading vendors operating in these areas.



# ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES

## - UK MARKET INFORMATION

### TABLE OF CONTENTS

	<u>Page no</u>
I INTRODUCTION	1
II MARKET OVERVIEW	3
A MANAGEMENT PERSPECTIVE	4
B ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES	7
C MARKET STRUCTURE	9
D MARKET SIZE AND GROWTH	11
III MARKET SECTOR INFORMATION	13
A MDNS	14
1 Sector Assessment	14
2 Leading Vendors	16
B Electronic Mail	19
1 Sector Assessment	19
2 Leading Vendors	20
C Electronic Data Interchange	22
1 Sector Assessment	22
2 Leading Vendors	24
D On-Line Information Services	26
1 Sector Assessment	26
2 Leading Vendors	29
a Market/Trading Databases	29
b Company Information Databases	32
c Credit Information Databases	33
d News Databases	33
e Other Databases	34
f User Specific Databases	35

		<u>Page no</u>
E	Transaction Processing	37
	1 Sector Assessment	37
	2 Electronic Markets	39
	3 Funds Transfer	42
	4 Principal/Agent Transactions	48
	5 Reservations/Bookings	48
	6 Electronic Shopping	48
F	Application Processing	50
	1 Sector Assessment	50
	2 Leading Vendors	51



ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES  
- UK MARKET INFORMATION

EXHIBITS

	<u>Page no</u>
II-1 Key Themes	5
II-2 Electronic Information and Communications Services	8
II-3 Market Structure	10
II-4 Market Size and Growth	12
III-1 Market Forecast for On-Line Information Services, UK 1987-1992	28
III-2 Market Forecast for Transaction Processing, UK 1987-1992	38

		<u>Page no</u>
E	Transaction Processing	37
	1 Sector Assessment	37
	2 Electronic Markets	39
	3 Funds Transfer	42
	4 Principal/Agent Transactions	48
	5 Reservations/Bookings	48
	6 Electronic Shopping	48
F	Application Processing	50
	1 Sector Assessment	50
	2 Leading Vendors	51

ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES  
- UK MARKET INFORMATION

EXHIBITS

	<u>Page no</u>
II-1 Key Themes	5
II-2 Electronic Information and Communications Services	8
II-3 Market Structure	10
II-4 Market Size and Growth	12
III-1 Market Forecast for On-Line Information Services, UK 1987-1992	28
III-2 Market Forecast for Transaction Processing, UK 1987-1992	38





# I INTRODUCTION



## I INTRODUCTION

### A OBJECTIVES

- This study has been prepared specifically for the Strategic Planning Unit of the National Westminster Bank.
- The prime objective was to provide a compilation of the data and information about the UK market for Electronic Information and Communication Services.
- The study includes an overall commercial and management assessment of its future development.

### B SCOPE

- The market analysis coverage is limited to relevant services within the United Kingdom. The scope of relevant services was defined as comprising
  - Managed Data Network Services
  - Electronic Mail
  - Electronic Data Interchange
  - On-Line Information Services
    - Public Information
    - User Specific
  - Transaction Processing
    - Electronic Markets
    - Funds Transfer
    - Principal/Agent Transactions
    - Non-Financial Transactions
    - Home Services
  - Application Processing
- Within each of these defined market sectors, data and information are set out in the following way:
  - Sector Analysis - including market size, future demand, level of competition and profitability prospects.
  - Leading Vendors - including their principal business activities, their areas of specialisation, target customer groups and service characteristics.

## C METHODOLOGY

- This study was based on a compilation of data and information held within INPUT's in house files and research material.
- INPUT has been researching this area in Western Europe since the beginning of 1985 and has published market assessments on VANS and EDI.
- In particular, most recently, INPUT researched and published a study entitled "Value Added Network and Data Services - European Market Directions, 1987 - 1992", June 87.

## D REPORT STRUCTURE

- The remaining chapters of this report are organised as follows:
  - Chapter II contains a general market overview which assesses the strategic trends observable in the subject markets and provides INPUT's long term assessment of market development.
  - Chapter III contains the detailed data on each market sector including the specific vendor information.



## II MARKET OVERVIEW



## II MARKET OVERVIEW

### A MANAGEMENT PERSPECTIVE

- A number of key themes, summarised in Exhibit II-1, provide a management perspective for the study of the Electronic Information and Communication Services Markets.
- It is vital that management place in proper context the revolution underway in all business and commercial activities as a result of rapidly developing high technology in the communications/computer sector.
- In attempting to provide a strategic assessment of the electronic information and communication services market INPUT places considerable emphasis on the need to adopt a marketing and business approach.
- Currently much thinking about these emerging markets is purely technology driven.
- This market is only at a formative stage. Major participants, for example British Telecom, are themselves struggling to define market needs and new areas of possible service. This is not surprising, we must all recognise that in this area we are operating at the pioneer fringe.
- Telecommunications deregulation or liberalisation is a response to this technology challenge.
- However, management must emphasise the marketing and business considerations of the potential of these new developments. Too frequently the approach becomes purely technological which is a road to high investment with no pay-back. The business purpose and focus must be preeminent.
- A key trend observable in the market as a consequence of computer communications convergence is that for many organisations the boundary between the business and the data processing systems is disappearing.
- This is of particular importance to banks where most activity is concerned with the movement and processing of information and data about money rather than handling money itself.
- This is one of the major reasons for so much difficulty in gaining an understanding of this area - the boundaries are blurred.
- But of course this is the justification for the National Westminster Bank to place so much emphasis on this area.
- INPUT's view would be that the Bank should study and explore every possibility of using this 'new' technology to deliver its existing services and to develop new value added products and services.

## EXHIBIT II-1

### KEY THEMES

- MARKET AT FORMATIVE STAGE
- EMPHASISE MARKETING AND BUSINESS CONSIDERATIONS
- BOUNDARY BETWEEN BUSINESS/SYSTEMS DISAPPEARING
- NEED FOR STRATEGY
  - DEEMPHASISE THE LONG TERM PLAN
- INFORMATION ENGINEERING



- This is very different from viewing this market as a separate opportunity or business area. This route can lead to failure, a fact which is recognised ultimately in such moves as BP's sale of SCICON to SD.
- The high growth (20%+) of the computer services business has made it apparently attractive to organisations in traditional slower growth areas.
- McDonnell Douglas (the airframe manufacturer) has, for example, consistently lost money in its Information Services business since it bought into, amongst other companies, TYMSHARE in 1984.
- There may be short-term 'spare capacity' type opportunities to be exploited - as long as they are fully recognised as such they provide a competitive advantage in the short term. Unfortunately such initiatives all too frequently acquire a life of their own and become strategic for the people involved.
- Given the rapidly developing technology and the enormous difficulty in forecasting the evolving interface between men and computers it is important to recognise that no-one actually knows what the business will be like in 5 or 10 years time.
- However this area is so vital that one cannot afford to do nothing. A broad strategy must be established but its detailed application must be allowed to evolve. The broad strategy must be continuously tested against past experience.
- What must be avoided at all costs is over-detailed (and consequently) rigid planning that does not allow for the real speed of change.
- One further key theme against which the development of the Electronic Information and Communication Services Market must be viewed is the development of the independent Information Services Business itself.
- Whilst it has been conventional to group all activity concerned with software under the heading of computer or information services it is now clear that a considerable part of this activity could be described as Information Engineering. This is analogous to the Engineering Industry within the broader definition of Manufacturing.
- The emergence of powerful new groupings like SD-Scicon and SEMACAP (CAP PLC and SEMA-METRA) alongside Cap-Gemini-Sogeti, EDS and of course the high level of increasing service activity from the hardware vendors, eg IBM, DIGITAL, UNISYS, etc is testimony to this development.
- Viewed from this perspective, forays into the 'information services' business in terms of developing 'new' areas of business must be treated with considerable caution.
- In this sense the bureau business provides an interesting precedent from which lessons can be learned concerning the new opportunity of communications services.

## B ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES

- In attempting to provide a management overview of the new 'communications services' markets it is useful to breakdown its components in the following way (Exhibit 11-2 refers).
  - COMMUNICATIONS
    - Bearer Services
    - Traffic
  - PROCESSING
  - INFORMATION
- Any service provided in this area will use some combination of these components but naturally the emphasis between them will vary considerably.
- Fundamentally all communications must run over the bearer service provided in the UK as an oligopoly of basically BT and Mercury.
- It is of course possible for organisations to effectively build their own networks (as National Westminster is doing) and under current liberalisation to obtain a VADS licence to sell services on these networks to third parties.
- In terms of these services it is important to distinguish between the role of 'network' based services (ie the provision of a virtual network to a client or a communications facilities management service) and the movement of data traffic on that network either at the level of enhanced services (eg error correction, packet switching) or at an applications level (eg electronic mail, EDI).
- The network based services are usually termed managed data network services (MDNS).
- Processing implies the use of a stored program computer connected to a network in which applications processing takes place eg a transaction authorisation, the updating of an account balance, etc.
- Information content relates to the concept of a Database or file system which contains data/information upon which a user would wish to conduct relevant searches.
- The analysis of these components provides the basis upon which a business assessment can be made of the desirability or otherwise of offering any particular given type of service.
  - For example MDNS is a generic, cost related service with no applications differentiation.
  - Processing depends for its value added component on application complexity.
  - Information needs will be a function of how quickly the data changes and how frequently those changes need to be known.



## EXHIBIT II-2

### ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES

- COMMUNICATIONS
  - Bearer Services
  - Traffic
- PROCESSING
- INFORMATION

## C MARKET STRUCTURE

- The market structure used in this report is that currently being used by the Strategic Planning Unit of the National Westminster Bank. It is listed in Exhibit II-3.
- Each of these areas is discussed in detail in Chapter III.



## EXHIBIT II-3

### MARKET STRUCTURE

#### ELECTRONIC INFORMATION AND COMMUNICATIONS SERVICES

- 1 Managed Data Network Services
- 2 Electronic Mail
- 3 Electronic Data Interchange
- 4 On-Line Information Services
  - Public Information
    - Prices, Exchange Rates
    - Company Information
    - Credit
    - News
    - Legal, Medical, etc
  - User Specific
    - Private Information
- 5 Transaction Processing
  - Electronic Markets
  - Funds Transfer
  - Principal/Agent Transactions
  - Non-Financial Transactions
  - Home Services
- 6 Application Processing

## D MARKET SIZE AND GROWTH

- Exhibit III-4 summarises INPUT's assessment of the size and growth potential of the UK Electronic Information and Communication Services Market.
- As pointed out elsewhere in this report, INPUT expects continuing convergence between services shown in this analysis as discrete elements.
- Sector totals should be viewed with some caution in this respect, but taken as a group they will give a good indication of the level of opportunity in the market.
- It should be noted that all INPUT forecasts are for end-user revenues. Consequently revenues (effectively) generated by closed user groups (eg SWIFT) or captive revenues between subsidiary and parent company are not recognised.

## EXHIBIT II-4

## MARKET SIZE AND GROWTH

MARKET SECTOR	£ million		
	1987	AAGR %	1992
1 MDNS	10	20%	25
2 ELECTRONIC MAIL	28	45%	180
3 EDI	5	80%	95
4 OLIS	260	27%	845
5 TRANSACTION PROCESSING	28	34%	120
6 APPLICATION PROCESSING	180	-	180
TOTAL	511	22%	1,445

### III MARKET SECTOR INFORMATION

- This chapter of the report describes the component sectors, as defined above in Chapter II, of the electronic information and communication services market.
- Each section follows broadly the same format, namely:
  - Sector Assessment
  - Leading Sector Vendors
    - In each section are discussed the following:
      - Future Demand
      - Level of Competition
      - Profitability Prospects
      - Business Activity
      - Vertical Markets
      - Target Customers
      - Service Characteristics
- Many of the vendors who are active in this market are present in more than one sector. To avoid repetition they are discussed in detail in the most relevant sub-section.



## A MDNS

### 1 Sector Assessment

- INPUT has assessed the market for managed data network services as achieving a level of £10 million in 1987.
- Further we have estimated that the market will grow at around 20% per annum to reach approximately £25 million in total revenues by 1992.
- This is an extremely difficult market to assess because of its embryonic and fragmented nature. The market is characterised by two extremes:
  - Large communications facilities management contracts, for example Unilever with EDS.
  - Off-site communications network monitoring services as provided by BT with their Linesman, Netman services.
- Between these two extremes can be grouped all that activity which can be classified as the supply of basic network capacity to a third party, for example network services provided by ISTEEL.
- It is also difficult to fully assess this market as an independent entity since in many cases network management functions are provided as part of other services. In INPUT's assessment these revenues cannot be separately identified at the end-user level and are therefore excluded.
- Competition in this market is inevitably limited at this stage to a relatively small number of vendors who operate substantial, usually worldwide networks.
- The level of marketing activity can largely be described as opportunistic at the moment.
- This area must inevitably be dominated by the PTT's in the future with perhaps one or two pan-national groups (like IBM or EDS) who are able to achieve sufficient economies of scale.
- It is not surprising therefore that the European PTTs are pushing to offer management data network services on a pan-European basis in competition with existing on-line network services operators such as General Electric's GEISCO and IBM's evolving network services.
- CEPT (the Conference on European Posts and Telecommunications) has initiated 2 projects one in management of private international data networks and another to examine the technical procedures necessary to upgrade the speeds on the PTTs X25 switching networks to a common transmission speed.



- Profitability in this sector will be a prime function of economies of scale, and as already inferred it is unlikely that independent vendors could offer a realistic or competitive service.
- It should of course be noted that it will be possible for owners of large networks to sell surplus capacity on their networks.
- However it is important to understand that this is a short-term tactical opportunity only, not a strategic option.

## 2 Leading Vendors

- The principal vendors currently active in this market sector can be listed as:
  - British Telecom
  - Mercury Data Network Services Ltd
  - IBM-BNS
  - EDS
  - GEISCO
  - GTE-TELENET
- Additionally there are a number of other organisations that possibly derive some revenues from what would be described as MDNS.
- This group would include:
  - TYMSHARE
  - CSC INFONET
  - ISTEEL
  - Telephone Rentals
- The sale and marketing of these services is generally opportunistic. There are no clear marketing guidelines since user knowledge is low and user needs generally ill-defined.
- Target customers would generally be large organisations operating on an international basis. Clearly this represents a strategic issue for a vendor operating solely on an 'in-country' basis. The opening of the European market in 1992 represents a significant challenge to vendors in this sector who do not have an international presence.
- The most significant opportunities are likely to appear in the Government area. Currently the Government is in the last stages of choosing a consortium to develop and run the Government Data Network (GDN). This large project is likely to account for a considerable element of the projected market growth in this sector.
- Leading consortia for this project are:
  - British Telecom and Computer Sciences
  - Cable and Wireless and ICL
- The service approach to this area is project oriented, organisations being set up to meet specific user demands on an opportunistic basis.

a) BNS

(3/88) BNS management dispel doubts that BNS offerings are geared to increasing IBM hardware sales. IBM's Managed Network Service supports all generic specific services offered by BNS and offers protection against technology change.

IBM believe customers will go to a 3rd party and cites its Matrix service as a case in point. EFT - the Building Societies' consortium - approached IBM in 1984 to set up a network for stored transactions. Nine months later, and ahead of Link, Matrix had begun. IBM was able to act as "honest broker" to overcome the Building Societies' mutual mistrust of one another.

There are 600 customers attached to the MNS. More than 1000 applications use the MNS as the delivery mechanism, some from IBM, others from third parties. Datasolve uses it for a network disaster-recovery service on behalf of Citibank and to offer its World Reporter financial services database. The network supports 6000 terminals and 250 hosts but has been configured by more than 100,000 terminals - enough capacity for the next three years. There are plans to merge the IBM UK internal network with the commercial network and bring it under the control of BNS. The internal network consists of some 20,000 terminals.

The next challenge for IBM will surely be the market for international services, although telecoms regulation prohibits anything quite like the MNS outside the UK.

IBM hopes the changes will come about from industry pressure as they use electronic trading to compete.

b) ICL

(7/86) ICL agrees to sell its UK data communications network to Mercury Communications in return for a 25% slice in a new managed data networks company, Mercury 5000, whilst expanding the scope of its network services, offering international links through a deal with US company GEISCO.

Deal frees ICL's parent STC to invest in services whilst the sale gives Mercury an instant packet switching network to pitch against BT's public data network.

ICL will continue to sell value added network services over the Mercury 5000 network (ie, Tradanet).

c) DEC

(7/87) Easynet (DECnet-based internal network) is the world's largest private network, used to link its installations worldwide and provide employees with access to over 50 Videotex databases and company-wide electronic mail: 1m messages/week delivered to over 60,000 mailboxes and 40 computers/day added to the network.



IBM's dominance in European networking is by no means assured; chinks are beginning to appear in national markets for Vans and OSI remains predominantly a European concern.

DEC has recognised that networking in Europe is as much as about politics as technology: It lists as objectives

- To become the primary networking vendor.
- Preferred partner of the PTTs.
- Supplier of the corporate information infrastructure.

DEC recognises that governments have a suspicion of IBM in the sensitive arena of national communications and fear that they could use Vads to secure SNA's position. DEC knows it can exploit this feeling.

d) Midland Fastrak

(1/88) Last year, Fastrak network traffic exploded by 400% - expect growth to continue at around 300%. Revenues over a million - Midland intend investing £10m in Fastrak over the next two years.

Some will go into Fastrak's quarterly network capacity upgrades (more business for Midland's Midnet private packet switched network) but most earmarked for Fastrak's fast-growing service portfolio.

(Fastrak created as the general Vans service to the Travinet travel agents' videotex service, set up by Thomas Cook (another Midland subsidiary). Fastrak is now the UK's leading videotex operator, expecting to win 60% of all new videotex network contracts in the year. 15 months ago, travel trade still accounted for 60-70% of Fastrak traffic. Now only accounts for 30-35% of traffic, financial services users (30%), motor trade (20%), public authorities (10%).

(Fastrak's sponsorship of the DTI's Vanguard campaign has helped win some of this business.)

## B ELECTRONIC MAIL (E-Mail)

### 1 Sector Assessment

E-mail is developing in two directions. Firstly through the rapid increase in the number of subscribers. (In the UK, there is a mailbox user base of 1 million excluding Prestel.) Secondly, through its development as a common access medium in a range of services including on-line databases, bulletin boards and interfaces with both telex and fax.

The PTTs provide these services, as do independent vendors, ie, GEISCO with Quick-Com, Istel with Comet, IBM with Screenmail, Mercury with Link 7500.

The UK is a relatively mature market in terms of business E-mail, but its development has been piecemeal and chaotic. The E-mail bureau services offered by Telecom Gold and One to One are constrained by regulation and national boundaries; effective interworking has been inhibited by political, commercial and technical factors.

E-mail is more flexible than fax and faster than telex, many customers are still unaware of the facility which E-mail provides for changing and modifying written copy.

Of the leading proprietary systems, Telecom Gold and Prestel (the BT viewdata service which incorporates an electronic mail facility) are the best known. Of the others, Easylink, One to One, Istel and Link are also widely known.

Of those companies which uses E-mail, about half are believed to subscribe to Telecom Gold, whilst one third uses in-house systems.

The X400 electronic mail standard means that subscriber electronic mail services can be interconnected using X400 protocols. Private networks could provide links between today's incompatible office systems.

INPUT has assessed this market in value at around £28m in 1987 and set to generate £180m in revenues by 1992, an annual average growth rate of 45%.

This high level of growth and the generic nature of electronic mail creates a highly competitive environment in which cost and customer service are key issues.

INPUT, although it has assessed these sub-sectors separately, foresees growing integration between E-mail and other services like EDI and OLIS as indicated above. In consequence vendors who are active in other services are likely to gain a considerable competitive advantage.

Clearly the more generic the service, the least value added or application dependent the service, the more likely it is that the PTT or very large network operator can win out through economies of scale and marketing presence.



## 2 Leading Vendors

### a) BRITISH TELECOM

#### (3/87) British Telecom gets aggressive in the electronic mail market with VADS restructure

Following the government's re-liberalisation of the value added data services licence, BT has created Telecom Gold Electronic Mailbox message handling services within the nascent BT Value Added Systems and Services division. The division will also be responsible for BT's X.400-based Message Handling System. BT VASS's restructuring represents a fresh marketing approach to VADS, and a BT spokesman said it would strengthen competitiveness, reduce operating costs, and resolve customer confusion over which BT messaging service to use.

Prestel has a 73,000 terminal network, and Mailbox is claimed to be one of the top three Prestel services accessed. Under the VASS restructuring users will have access to the same facilities as Telecom Gold's 61,000 users, but may have to pay a further charge on top of existing Telecom Gold tariffs. But a combined Telecom Gold/Mailbox network could give BT a "critical mass" user population to see off email rivals such as Mercury Link 7500 and One to One. BT must first resolve details to the Prestel/Telecom Gold gateway, due last year and now promised for next month. Products enhancing Prestel's messaging capability are also due this year. BT also outlined plans to create a Value Added Business Publishing division which will acquire and develop on-line business databases; a Value Added Consumer Services division to promote teleshopping and other consumer orientated services; and a Computer and Networks Services division that will rationalise and administer computer and technological resources needed by message handling services.

(3/88) Systems Designers and BT have formed a joint venture to market secure administrative and messaging systems. SISL (Secure Information Systems) is 51% owned by BT and will put together systems for applications such as E-mail for organisations that require high security such as the MOD, DHSS, Inland Revenue and banks.

### b) ONE-TO-ONE

(1/86) Stopped charging for sending messages on its E-mail service.

(3/87) Adds a credit-checking facility to its E-mail service.

(5/87) One-to-one put up for sale by parent, Pacific Telesis. One-to-one has 75 staff and is number two in the UK market with a 20% share after Telecom Gold.

(5/87) Management and BFT (part of Comtext) buy, terms not disclosed.

c) IBM-BNS

Screenmail. Designed for sending messages within and between companies. In addition to the usual facilities for editing, reviewing, using distribution lists, etc, an online directory of users and an online help facility are available.

d) INS

Quik-Comm. This service is based on the Geisco world-wide network. Access is by dial-up connection from any location. Messages are stored in mailboxes for collection by recipient.

Uses include:

- tracking of multi-site projects
- financial reporting
- document development
- inter-office communications
- product planning schedules.

Quik-Comm can be accessed in most European languages.

e) ISTEL

Comet. The first commercial E-mail service in the UK. Facilities available include editing, scanning of files, retrieving, filing and deleting of messages, use of electronic noticeboards, directories, distribution lists and closed user groups.

f) TRAVINET (Midland Bank)

E-mail available over the Fastrak network using both videotex and asynchronous terminals. Leased-line connection to Telecom Gold. In addition to the basic mail services the system allows sending and receipt of telexes and access to a wide range of business information databases.

g) EASYLINK

Easylink, Telex and E-mail. Dial-a-gram and translation service.



## C ELECTRONIC DATA INTERCHANGE (EDI)

### 1 Sector Assessment

The UK leads the world in the use of EDI. 60-70% of all European EDI activity is in the UK - with in excess of 1,000 users at the time of writing (March 1988). This is expected to reach 5,000 by 1990. Some sectors are taking up EDI at rates approaching 120% a year and such spectacular growth can be attributed to the Government's Vanguard awareness campaign as well as advances in message and interchange standards.

The UK has the most cost-effective range of EDI services in Europe, benefitting a wide range of users in different industries and supplied in a fiercely-contested market by Istel, INS (ICL and Geisco joint venture) and IBM.

Apart from cost savings, EDI has become a prerequisite for competitiveness in some industry sectors simply because certain players in these sectors are demanding EDI connections as a condition of trading. This is good news for EDI clearing houses like INS and Istel, and for large companies like Volkswagen, Boots and ICI which are experiencing far more efficient trading patterns. However, the advantages are not so clear-cut for smaller companies: although a basic off-the-peg EDI system can be bought for £3,000, converting existing IT systems to meet EDI can take as long as two years before any cost savings are realised. Thus, users are at the mercy of the clearing houses and their larger trading partners. This situation will continue until nascent X.400 services can provide a cheap public service alternative.

The UK EDI market is still no more than 30% developed, making the prospect of a unified UK network for paperless trading unlikely in the immediate future. EDI suppliers have plenty of space, making it difficult for them to find a common interest which would justify the cost of network connection.

Although there is scope for organisations to enter the EDI market, it is likely to be dominated by a limited number of suppliers because of the high levels of investment required and the need to offer a network service which can communicate with a substantial number of participants.

Indications are that the market wants one network service, regardless of where trading partners are located. However, 85% of the trade transactions are at national level and consequently a universal standard is likely to take years to establish.

What would hold up EDI fatally would be if the major companies did nothing waiting for the definitive standard to emerge.

- INPUT assesses the UK market as having reached £5M in revenues in 1987, but very rapid growth (80% AAGR) should take this sector to about £95 million by 1992.
- Despite the low level of sales this market has been very competitive and has resulted in only a very limited number of players becoming established. The joint BT/McDonnell Douglas EDINET Ltd was closed down after 18 months when it failed to attract any customers.
- Profitability is still an issue since the highly competitive nature of the market and the cost saving nature of the sales argument place considerable pressure on the vendor.
- In the longer term as more standards are established the need for third party services will diminish. Consequently unless vendors continue to develop new value added features they could face some erosion of their revenues. This will of course impact profitability.
- This is a market in which vertical orientation is paramount, for example INS, (a leading vendor described below) is organised strictly on vertical market lines.
- INS has three major business groupings:
  - Trade and Industry
  - Retail Distribution and Manufacturing
  - Financial Services
- Within each of these areas commitment to developing customer dependence, a thorough understanding of the industry and its issues, high service quality etc can only be developed through close tracking of, and heavy marketing commitment to, target industries.
- Key to the development of EDI is the identification and exploitation of trading clusters.
- Commitment of service to the customer is a vital vendor characteristic involving such requirements as manned 24 hour help desks to support clients. Service factors are key vendor differentiators.



## 2 Leading Vendors

### a) INS (ICL/Geisco)

#### i) Vendor Profile

Created in 1987 from a merger of ICL and Geisco's vans networks, INS combines the international span and document conversion facilities of Geisco's EDI Express and ICL's Tradanet, which services the retail sector, the UK's largest and most established EDI trading community. INS also inherited ICL's Brokernet van (linking motor insurance companies to their brokers), the Dish (Data Interchange for Shipping) service, and Geisco's Motornet (for car makers and suppliers). Trading population of 300 companies in April 1987, 600 currently.

#### ii) Vendor Data

- (6/87) 1st EDI to support Edifact. EQUATOR (shipping/transport). This market is the most advanced in the implementation of Edifact formats (24 large UK shippers on TRADANET as well as National Freight Consortium (2/88).
- (8/87) Both retail divisions of Littlewoods - chain stores and home shopping - to use TRADANET.
- (1/88) Royal Insurance, National Employers' Mutual and Link Motor Policies at Lloyds: BROKERNET.
- (2/88) Plans to link INS interchange service with BACS to provide EFT. The service, (BACSNET) will complete the electronic trading cycle between companies and banks, representing a breakthrough for the company in the lucrative financial electronic trading market (INS were recently beaten by IBM to a prestige contract to provide Lloyds of London with data exchange facilities).
- (3/88) More divisions of the Health Service to use TRADANET.
- (3/88) INS to introduce paperless trading system in a move that could extend its network to 2500 users in an agreement to link INS with a similar worldwide service run by GE Information Systems.
- (2/87) 13 electricity boards - 1st public utility to adopt EDI, claims INS - has signed up for TRADANET.

### B) ISTEL

#### i) Vendor Profile

Formerly BL Systems, renamed Istel in January 1984. Istel's VANS service include VIEWSHARE (the largest videotex bureau in Europe), COMET (E-mail) and EDICT (a clearing-house service for EDI) - all accessed via the INFOTRAC network (the largest private data network in the UK). The EDICT service was launched in June 85, and now has over 250 subscribers, having rapidly expanded from its base in the automotive sector (Austin Rover chose Istel as its sole contractor for EDI) into manufacturing, distribution, finance, travel and health.



ii) Vendor Data

- (4/87) EDICT first to break into financial services market with Hire Purchase Information (UK's central register of finance agreements) using EDICT to gather credit information from finance houses. (Over 4 million records gathered from 900 finance houses.) Subscriber enquiries processed at a rate of 10,000 a day - over 20 million records held.
- (6/87) Two big users of INS/Istel - the Health Service and Motor industry - want them to establish links between networks.
- (8/87) British Coal to take EDI services over Edict. With 4500 active suppliers, British Coal potentially the largest EDI user in the UK. Istel expects to sign up 100 British Coal suppliers over the next year, which would increase customer base by 40%. INS has British Coal suppliers on TRADANET - a gateway between the two could now be a possibility.
- (10/87) SMMT endorsement of EDICT conditional on the INS and Istel EDI Clearing Centres' interlinking link due for completion in 1988.

c) IBM (Business Network Services)

i) Vendor Profile

BNS (formed in July 86) came about as a result of the failed venture with BT (Jove).

BNS offers a range of services, including Managed Network Services to facilitate file transfer between customers' mainframes and terminals, Information Exchange (IE) which provides store and forward mailbox facilities as well as E-mail.

ii) Vendor Data

- (10/87) As a result of SMMT forcing INS/Istel to link their Motonet and EDICT services, INS is "virtually certain" to be required to offer a link between Dish and IBM's Shipnet, according to ICI's Colin Clark, chairman of the Dish network committee.

Clark said some members of Dish and Shipnet had joined to form the EDI Trade and Transport Association, which intends to further the development of EDI among all industry communities and sees the formation of links between operators as essential to the health of the industry.

IBM commented that IBM founded Shipnet and is a member of Dish, so it is aware of the issues, but would not speculate on the likelihood of any links.

- (3/88) IBM embarking on a push into indirect marketing of its BNS with the signing of two agents to market its EDI link package. The agents (Systems Designers and the Software Conenction) will interface systems and applications with the EDI link package for use with IBM's Information Exchange service.

## D) ON-LINE INFORMATION SERVICES

### 1 Sector Assessment

There are three distinct areas:

- Information crucial to decision making, ie, real-time financial information systems such as Reuters, Quotron, Telerate, Topic, ADP.
- Information valuable to decision making, re industry - or profession - specific databases such as legal, medical, wine, advertising.
- Information useful to decision making, ie full text, bibliographic.

The industry is becoming increasingly dominated by large corporations (as the convergence of banking and computer services intensifies): Reuters, acquiring IP Sharp, Instinet and Finsbury Data Services and Pergammon acquiring US host, Orbit as well as Datasolve's World Reporter.

The non-financial on-line sector will inevitably shake-out owing to problems of profitability.

A key strategic trend is the offering of comprehensive services to niche markets; UK Telerate and Reuters dominate the credit and banking sectors - Topic the auxiliary banking, and Topic and Datastream the investment and insurance sectors. There is limited head to head confrontation.

The UK is the largest European market for online database services.

Since Prestel became the world's first interactive videotex service in 1980, it has now grown to offer 160 databases and boasts over 65,000 users - 55% of these from the business sector.

Videotex's popularity as a delivery medium owes a lot to its easy configuration. Most connections to a Prestel service cost about £1 per minute to use, while cost of the base equipment is between £1500 and £2500. Most users already have a PC, and for them, a videotex or BT Gold add-in card is a small investment.

Other more sophisticated services cost more - some of the up-market databases charge anything up to £1000 for an annual subscription, with connection time charged separately. But these are booming too, and may overhaul videotex delivery before long.



Certainly in the banking and financial services the electronic age has arrived with a vengeance, and stock market data is a major growth area for online services. Other sectors are not far behind. Virtually all the professions - medical, legal, market research and management - are increasingly avid users of electronic information. One of the biggest online service vendors, Dialog, estimates that 80% of new business in 1986 came from these kinds of professionals.

The range and content of online databases is swelling daily. In the UK there are already some 300 available. There are a further 3000 databases worldwide, and as telecoms links become cheaper and easier, these will soon be available to the ordinary PC user too.

The type of information on these services is growing as well. Apart from the normal news clipping and business database services, improvements in electronic typesetting have boosted the growth of full-text databases of all kinds, including a number of new electronic magazines.

The UK market for On-Line Information Services was estimated for 1987 at around £260M, and is forecast to grow at an annual average rate of 27% to reach over £845 million by 1992.

The estimated breakdown of this forecast by individual subsector is shown in Exhibit III-1.

This sector remains intensively competitive in all sectors of the market.

The high profits to be made from the provision of on-line financial information have led to a high need to introduce innovative products and services.

The lack of profitability in such areas as 'news databases' has led to consolidation as vendors seek critical mass. This area is likely to need several more years of high growth before some payback can be achieved.

Of necessity many of these markets are vertically orientated and are marketed accordingly. Nearly all services are aimed at the business sector where the highest preparedness to pay for information relevant to a profit making enterprise exists.

As with any on-line service, particularly for critical applications like trading, the provision of a very high level of service to the end user is of the utmost importance. Consequently organisations like Reuters provide a high-level of maintenance and service support and are continuing to study ways in which this might be improved.

## EXHIBIT III-1

## MARKET FORECAST FOR ON-LINE INFORMATION SERVICES

UK 1987 - 1992

Market Subsector	£ million		
	1987	AAGR %	1992
Public Information			
◦ Prices/ Exchange Rates	180	28%	620
◦ Company Information	20	25%	60
◦ Credit	25	25%	75
◦ News	8	20%	20
◦ Legal, Medical, Other	22	20%	55
User Specific (Private)	5	25%	15
TOTAL	260	27%	845

## 2 Leading Vendors

### a) Market/Trading Databases

#### i) REUTERS

Market leader in trading and dealing - processing and information and the provision of financial news. Whole database (Equities 2000, Commodities 2000 and Energy 2000) carries more than 100,000 quotations of stocks, bonds, futures, options, mutual and money market funds from around 130 exchanges. (Commodities 2000 and Energy 2000 - 18,000 quotations on commodity, financial and energy futures together with related options from over 30 exchanges.) Both of these offer the user access not only to the expanded database of exchange quotations but also to the whole Reuter Monitor database.

(2/87) 9,500 dealing keystations. Terminals increased by 37% to 141,000 (10,000 new since deregulation).

EQUITY 2000: Information on 100,000 equities, futures and commodity prices. Orders cover 7,500 keystations, 2,500 have been booked since October.

(3/87) Reuters Monitor Order Entry Service: Electronic order routing facility for futures traders.

(3/87) Reuters buy IP Sharp who have 150 databases on econometric data, energy and aviation business.

(5/87) World's largest private digital comms. network into SEAQ level 2 (at Topic rate).  
Next up: Commodities 2000.

(11/87) Launches Citywatch, news and prices telex service.

IP Sharp: Infoservice, EMIS, Intermarket, Instart Link (information services over Ipsanet).

REUTERS launch new quotation and analytical system for options traders: SCHWARZATRON.



ii) TELERATE

Information network provides a constant display of market data and news items on terminals/PCs. Over 20,000 instantly updated video pages for monitoring the volatile money, securities and foreign exchange markets with information coming from banks, brokers, dealers - as many as 500,000 separate updates each day.

- (10/87) Telerate signs a deal with Mercury to offer dial up access to its Telerate financial information service over Mercury's packet network. Users get access to the constantly updated service for a third of the cost of leased line access. Telerate is not working with BT for the UK Telerate Access Service, TAS, because the latter was unable to provide the necessary accounting software to monitor Telerate customers' use of the service.

Telerate plans to double its subscriber base of 55,000. It mailshot 26,000 of the 60,000 additional companies it has identified in the UK as most likely to subscribe to TAS. They are UK companies with a turnover in excess of £5m; the National Association of Securities Dealers and Investment Managers, independent financial intermediaries, the British Insurance Brokers' Association, building societies and small banks brokers and dealers.

- (3/88) Automated exchange manager Intex and financial information provider Telerate have announced a joint marketing and development agreement for automated market systems for stock exchanges and their members. Intex will design trading and trade processing systems, while Telerate will provide management communications and international marketing. Telerate will also market Intex's existing software.

iii) TOPIC

Comprehensive information service, one of the world's largest private viewdata systems with over 20,000 pages: Information on share and gilt prices (the top 2300), company announcements, commentary and forecasts, London traded options, exchange rates, etc.

Used by City Institutions, Building Societies, Insurance Companies, local authorities, etc.

iv) IBM

IBM launches (Sept 87) software package for City dealers and analysts developed by the International Stock Exchange. Radix is designed to bring together information from the various news and financial services, such as Reuters, Telerate and the Stock Exchange's Topic and IBM's Computer Readable Service.

Radix allows users to reduce the number of screens on their desks, providing the ability to capture "transient information" currently delivered to traders in video, rather than processable digital, form. In addition, the keystrokes required to access information are consistent across services. Radix also offers user-defined names for accessing information quickly and the ability to set alarms for prices of bonds, equities, commodities or currencies reaching certain pre-defined levels.

v) EXTEL

Priceline (Store Price service covering over 4,000 UK stock)

External (Bond Service)

Exstore (Covers over 100,000 equities, securities, bonds and traded options - collected through Reuters' international network)

Examiner (At-a-glance news items describing current events on Companies, Stock Market, General news, etc).

vi) OTHERS

Pont Data launches ADVANTAGE, a new low-cost shares information service targetted at the private investor - access at local call rates via PC or videotex to all securities prices quoted on the main stock exchanges, and information on foreign exchange, a range of European options and futures exchanges as well as gilts and financial news as it happens.

CompuServe and Computer Sciences have joined forces with NMW Computers to offer CompuServe's business related databases and corporate electronic communications systems to companies in the UK (enables them to evaluate corporate financial trends on a global scale).

Stock Exchange launches a new real-time price information service - MARKET EYE which features up-to-the-second price change and related stock market information. Transmitted nationwide by BBC's new Datacast broadcast network - provides comprehensive data on UK equities, gilt-edged securities and London traded international stocks supplied by the central Seaq computer.

DOGFOX (SCRIMGEOUR VICKERS): Electronically delivered information for fund managers.

QUOTRON launches ALERT Systems - a new development in the monitoring of trading performance and opportunities - latest additions to Quotron's Q1000 international equity service. (Select stocks/market stats, adjust price, bid, etc.) Also Alert Manager.

TIMON Computers (subsidiary of NMW) and London brokers Tradition have launched a new system for the international money markets - DART; uses Reuters information service, enables dealers to monitor and update their systems as well as to feed back information instantly.



b) Company Information Databases

i) Dun & Bradstreet

Business Factfile contains over 300,000 UK businesses with ability to select information from the database by combinations of geographic location, line of business, company size, turnover, etc. Marketing UK (details of 200,000 UK companies) and WHO OWNS WHOM (linking parent companies and subsidiaries).

ii) Datastream

Subsidiary of Dun & Bradstreet provides information on investment research, investment accounting and portfolio valuation. These services are supported by databases giving international coverage of securities, companies, interest rates, exchange rates, financial futures, commodities and economic services.

Sources of the data include the Stock Exchange, LIFFE, information vendors including Reuters, Extel and Telerate.

iii) Extel

Exstat provides balance sheet, profit and loss and supplementary information on over 3,000 UK quoted and unquoted companies, containing 6 year historical information and company accounts information.

iv) BT

Textnet (Network of Bureaux).

BT Hotline: BT's online database service collects together many of the UK, European and US databases, including a gateway to Dow Jones News Retrieval Service.

v) British Library

Business Information Service - largest public collection of market research reports - Online database search offered for most of the leading business, scientific and technical databases.

vi) Datastar

Company, market, industry and investment intelligence services offer coordinated access to key databases.

vii) Euromonitor

Market Direction - full text reports on 76 product sectors for 5 international markets. Eurofacts - statistics on 16 European countries. Eurofile - industry profiles of companies, contacts, statistics and regulations.

viii) FT

McCarthy Online - news and comment service, Business Reports database (from newsletters), currency and share index.

ix) ICC

Emphasis on its videotex option via ICC viewdata. Financial datasheets on 90,000+ companies, Company Directory, Sharewatch on shareholders and stockbroker research reports.

x) KOMPASS ONLINE

Unified file based on Kompass Directory, Kelly's, Directory of Directors, Dial Industry and British Exports. Details of 115,000 companies (45,000 categories).

c) Credit Information Databases

i) Dun & Bradstreet

Dun & Bradstreet's Credit Services information available through DunSprint (business information reports), Dunsvoice (business and credit information via telephone).

ii) BT

Infocheck: (Credit rating of 100,000 UK companies.)

Jordans: Information on 1.7m UK companies - consolidated accounts for top 66,000. Business surveys of Top 2,000 and second 2,000, Company monitoring, New Companies service, Shareholder Service.

iii) Citibank

Citiswitch: (Worldwide service through 4 nodes - London, Bahrain, New York, Hong Kong.) One of its major holdings is Diners Club which uses the network for international credit card authorisation and accounting.

iv) UAPT

Credit information on individuals.

d) News Databases

ADP FIL's Markerpulse news and price information service for Merrill Lynch's North American institutionalised sales department in London.

BIS: Informat, Monitors 1,000+ publications/month in ten languages. Executive Infobrief - digests of business interests, financial, technology, etc. Newsfile - similar to Infonet but interactively on demand.



CITIBANK launches GLOBAL REPORT, electronic system that gathers, organises and continuously updates news and information from worldwide leading independent sources. Information providers who contribute to the service include Business International, Compex, DAFSA, AP Dow Jones, Financial Times Business Information, Global Analysis Systems, Knight-Ridder, Standard & Poor's, Money Market Services & Citibank.

Database of over 2 million pages and 10,000 new articles each day.

GLOBAL ANALYSIS SYSTEMS offers IIM (International Investment Monitor) an online analysis service - events in international business /impact overseas investment and trade. Covers 85 countries.

FTBR (Financial Times Business Reports database) now available to all users of PROFILE Information, the online information service: Full text of 22 regular newsletters (inc 6 Fintech newsletters).

REUTERS: Finsbury Data Services.

PERGAMON: World Reporter (News and Current Affairs).  
Patents, general scientific and technical databases.

EDS: Satellite news service with McGraw Hill.

BT: IDB: Informatics Daily Bulletin.

e) Other Databases

DIALOG US Information Retrieval service - over 300 databases, 100 million items of information across all disciplines.

IMS Imstase - Marketing intelligence system on the worldwide pharmaceutical industry.  
Imsmarq - pharmaceutical trademarks.

PEAT MARWICK Grants - a guide to private/public sector grants in the UK.

DATASOLVE Property management, mailing and publishing.  
World Exporter  
Magic (advertising)

MEAD Nexis (contains over 17m articles, legal cases and patents).  
In addition to legal/scientific database, it publishes articles from 125 newspapers, magazines and wire services.

EDS Runs UK's central register of nurses, midwives and health visitors.

INS Drugwatch.

WEX Wine and spirits database and industry information.



f) User Specific Databases

This is a particularly difficult area to assess from a definitional standpoint. Primarily on-line information services supplied for a specific user would not generally be defined by INPUT as OLIS third-party service, but as part of INPUT's Processing Services Sector.

However INPUT has attempted to evaluate this particular sector of National Westminster's market definition as reflected in the structure of the report. Our estimate of £5 million revenue for the UK is shown in Exhibit III-1, together with our projection that this sector could maintain an AAGR of 25% to achieve £15 million in total revenues in the UK by 1992.

We consider that at the moment, without further research, that revenues in this sector are almost entirely generated within the financial sector.

Our understanding is that UK banks are beginning to develop services of this kind to extend their range of financial services and supportive activities. An example of this would be Midland's customer information system.

INPUT considers that this area is still in its formative stages. Midland Bank claimed (as of September 1987) to have integrated its files for its (approximately) 8,000 corporate accounts. It had at this stage still to tackle its retail accounts. The status for the other leading clearing banks is not known at time of writing (March 1988).

The point being made here, is that the provision of the kinds of services envisaged in this sector, will be to some extent dependent upon the integration of customer files in order to provide access to all possible relevant information and data. This is a non trivial task.

Additionally all major UK banks use a service bureau approach to provide cash management services. In order to meet US competition (real or potential) they have formed agreements with commercial worldwide network vendors such as GEISCO and ADP in order to provide appropriate time shared offerings for the electronic banking market.

Examples of these are:

TREASURY MGT. SYSTEMS

Barclays	-	BAR CAM	(Packet Switching Services, GEISCO)
Lloyds	-	CASHCALL	(ADP)
Midland	-	CMS	(ADP)
NatWest	-	NETWORK	(GEISCO)

In addition other possible examples of services for inclusion in this sector are:

Midland

Retail customer information system (Link software).  
On it, distributed corporate banking system (Fastrate).



Datasolve Powersource services including Facilities Management, Mainframe Host, virtual computer and Datashield. Provides products and services in the following specialist market areas: Financial (securities management, institutional investors, insurance, underwriters and banking), Accountants (on-line accounting, information planning, debt recovery, financial consolidation systems), Taxation Specialists (taxation systems for personal and corporate tax and investment portfolios), Travel and Leisure (computerised booking, accounting and administration facilities), Retail trades (applications for book and retail trades, development of teletext services), Manufacturing.

### LLOYDS

£57m research project: to improve Lloyds' customer relations and marketing systems by the development of an integrated branch information network which will give rapid online information to managers about all aspects of the customer base.

GEAC developed AUTOSTAR at the request/in conjunction with Midland and is notching up customers - Lloyds, Clydesdale, Samuel Montague (London). Reconciliation function automated (leading package). McDonnell Douglas the main competitor.

CITICORP Two market services - GLOBAL REPORTS (corporate treasurers) and STREET SENSE (smaller investment advisors/brokers).

HALIFAX has given agents access to its main computer via BT's new voice and data terminal, QWERTYPHONE. Agents can obtain up-to-date information on customers' accounts, etc without phoning the local branch.

Leeds PBS to adopt Philips' Viewdata through its network of branches (500).

INPUT considers that considerable more research is needed in order to clarify definitions and quantify the level of business activity in this sector.

It is likely that this area will provide increasingly fruitful for financial institutions as, has already been indicated, more and more existing and new financial services are delivered in an on-line form.

The characteristics of this sector will be determined to a large extent by the selection of and design of the financial services themselves rather than the actual technology.

Thus such factors as selection of target markets, whether vertical or cross industry, will be vital. National Westminster will need to pay close attention to the augmentation of its financial services with every possible 'value added' component.

In the main this means considering the totality of information and data requirements that the bank client may have in order to utilise the core service. Clearly the integration of OLIS on a user specific basis is likely to be vital. The difficulty from a market assessment point of view will be to identify this as a separate sector.

This sector must be considered as very closely aligned, if not totally integrated with that of Transaction Processing as described in section E below.

## E TRANSACTION PROCESSING

### 1 Sector Assessment

- In assessing the market size for this sector it is important to understand that INPUT measures end user revenues within what is defined as the 'non-captive' market. This naturally excludes all revenues generated internally or from subsidiaries within large organisations and revenues generated by closed user groups such as SWIFT, BACSTEL, etc.
- INPUT appreciates that whilst this definitional approach has been sound for computer services markets in general, it does lead to difficulties in the subject area as the distinction between a commercial service and the computer processing of it become blurred.
- INPUT expects growth to be very strong in this area in totality, the measurement of this growth in a strict 'third party' service sense is more difficult to predict.
- INPUT's tentative estimate of this sector is shown in Exhibit III-2. As can be seen, we have assessed end user revenues in 1987 at around £28 million and forecast overall growth in excess of 30% per annum to achieve a £120 million market by 1992.
- Competition in general for this sector is likely to be restricted by the considerable barriers to entry that exist. Partnerships or joint companies with other organisations that can bring the requisite 'know-how' will be a feature of this sector. There exists a strong need for relationships between independents and financial institutions.
- Within the sector, competition will be high between the participants as they seek to gain competitive edge and seek out changing user needs and requirements.
- It will be vital for vendors to gauge these user requirements as accurately as possible if acceptable levels of profitability are to be achieved.
- INPUT notes continuing evidence in the marketplace that users are reluctant to pay high prices for 'totally integrated services' that force them to buy many features that they do not actually need.
- It will be vital to select specific functions for which a real demand exists which can then form the basis of a viable service offering.



EXHIBIT III-2

MARKET FORECAST FOR TRANSACTION PROCESSING  
UK 1987 - 1992

Market Subsector	£ million		
	1987	AAGR%	1992
Electronic Markets	5	32%	20
Funds Transfer	10	32%	40
Principal/Agents	5	48%	35
Reservations/Bookings	6	20%	15
Electronic Shopping	2	38%	10
<b>TOTAL</b>	<b>28</b>	<b>34%</b>	<b>120</b>



SEAO	Stock Exchange Automated Quotations System - domestic and international equities, gilts, stock.
SAEF	SEAO Automatic Execution facility. Service based on the SEAO network and available to all Stock Exchange members whereby they enter orders for SEAO securities through terminals for automatic execution by the SEAO central system.
TALISMAN	Computerised settlement for equities, used by over 200 member firms. 7,500 securities are eligible for TALISMAN settlement.
INS	Institutional Net Settlement service - centralised system allowing member firms and institutions to settle in equities on a net basis across the market.
TAURUS	Retention and transfer of registered securities providing for the dematerialisation of securities and allowing settlement by book entry transfer.
TRAX	Under the auspices of the Association of International Bond Dealers (AIBD) an on-line Transaction Exchange (TRAX) is being set up which will provide transaction confirmation for all Eurobond instruments.

The system is designed to be self-financing with a monthly standing charge of £150 plus a per-transaction charge of well under £1.

AIBD is projecting a start-up volume of 10,000 trades and a participation of some 100 firms, most though not all of which will be based in London. The initial costs, which AIBD itself can absorb in its overheads, should be repaid within three years, and the major expenditure will be for computers and software, an addition of 17 more people to the staff of the AIBD small computer centre in London and the purchase of additional office space, most probably in Docklands.

Members of TRAX will also have to invest in their own hardware or write software for their mainframe computer according to AIBD's plans. Smaller firms are recommended to use the IBM PS - the successor to the Personal Computer (PC) - for which AIBD could provide software at no extra cost.

NMW, bureau which processes half of all UK Stock Exchange trades has signed an agreement with the TSE (Toronto) for a share information service.

Sole distributor of TSE's services via - high speed comms network installed in the UK. The TSE has developed its CATS computerised dealing service into CATS International. CATS-I will start as a pilot scheme with a small number of securities and then eventually encompass all TSE stocks.

Later on, UK securities houses will have links to US securities via TSE's links with the Midwest exchange. This will cover all North American exchanges, NASDAQ, International Exchange (CSE) and Canadian news items.

The CATS-I link with the UK will provide a currency conversion facility, international settlement and a stock loan system. 10 random users are already connected to the service.

TELERATE introduce TELETRAC, a new financial markets product which combines graphics and technical analysis, taking advantage of real-time quotations to present entry and exit points on the various markets.

NATWEST has improved its Treasury Data Service (TDS) for corporate treasurers and finance directors by upgrading foreign exchange and sterling market rates minute by minute.

The TDS has increased the number of currencies quoted from 23 to 49 (spot and forward for up to 12 months), while rates from NatWest's sterling money market office now supplement the US \$LIBOR and Interbank Deposit rates previously provided.

TAURUS: A major step in the securities industry (scheduled for 1989) - eliminates physical delivery of share certificates.

SAEF (SEAF) Automated Execution Facility) automatic link with TAURUS will help brokers cut through paper jungle.

FINANCIAL & CLEARING SERVICES (BS Ltd's rival) only marketed to Hoare Garrett companies. Plans to open up to outside clients later this year.

KAPITI: 44 users throughout the world for its EXIMBILLS system for automating trade finance administration in banks. (Lloyds, UBAF, Standard Chartered, Parbus). EXIMBILLS: Combined text processing and accounting system enabling banks to open letters of credit on behalf of their customers to monitor progress. The system is real-time, multi-currency.

FIRST NATIONAL BANK OF CHICAGO - customer access system called FIRST-TRADE allows customers to initiate letters of credit. Also providing ATP (Accelerated Trade Payment Program) which speeds up documentation at experts' end of transactions (first customer: Shell). Can be run on the INS network.

STOCK EXCHANGE plans to develop a trading system on which up to 200 market making firms all over the world will eventually be able to display prices for up to 1,500 non-British equities.

TAPS (Bank of Scotland's Transcontinental Automated Payment Service): overseas pension payments overseas: Essentially a customised SWIFT service.

SECURITY PACIFIC: Treasury securities and over-the-counter treasury options.



EPT (set up by Building Societies' Association) has seven of the top 11 societies on its MATRIX network: Alliance & Leicester, Bradford & Bingley, Bristol & West, Nationwide & Anglia, Leeds Permanent, National & Provincial and the Woolwich.

The independent LINK network has four larger members (2 banks, 18 smaller partners).

REUTERS & CHICAGO MERCANTILE EXCHANGE (CME): Plan to develop a joint global trading system. So far "in principle" involves the creation of a global electronic automated transaction system for the trading of futures and futures-options before and after regular US business trading hours.

To be called P-M-T - Post (Pre) Market Trading. CME intends to use the Reuter Dealing Trading System (RDTS) for its P-M-T service. RDTS is a trading and information service which is being developed for the governmental debt securities and foreign exchange cash markets. The service will also provide access to data carried on the Reuter Monitor and other Reuter Networks.

CCF: Completed a £1m deal with Barclays for treasury front and back office systems for 15 financial centres, using the TUFFS off-balance sheet instrument system (Barclays will be using the futures, FRAs and swaps modules) and PRISM to support fixed income securities trading.

BARCLAYS announces launch of its new interface treasury product ERA (Exchange Rate Agreement). Provides a mechanism for hedging futures movements in foreign exchange margins by financial institutions dealing in the expanding international markets.

ICCM (International Commodities Clearing House): first DEC-based system to provide matching and trade confirmations for the London Metal Exchange (LME) has gone smoothly. City's only real-time confirmation matching system.

IDIS (Inter-bourse Data Information System): could provide Europe-wide network of continuous price reporting. Seaq International, London pricing service for internationally-traded stock, made official the over-the-counter telephone market - over half business coming from overseas - IDIS could give access to an even wider market.

AT & T & Telerate: partnership to develop and market electronic transaction services for global financial markets.

Helix Financial Systems: OPPORTUNITY, takes real-time rates from digital information feeds and allows dealers to perform calculations (short and medium term interest arbitrage discount to gold, currency basket swaps and FRAs).

Helix is also marketing the FSDEALER system developed by Future Systems which is a real time deal capture, position keeping and limits speaking system.

Nomura International Finance offers a complete banking service including a securities trading capability as well as FX and money market dealing.



Daily settlement of gilt-edged transactions handled by CGO (Central Gilts Office) - London-based and links to its members across the Stock Exchange's X25 private packet-switched network - the IDN. (Currently 80 members of the system.)

### 3 Funds Transfer

In the field of EFT, there are two distinct sectors - non-retail and retail.

In the non-retail sector, a number of private and closed user groups exist ie, SWIFT II and CHAPS.

EFT services are linked with corporate cash and treasury management systems - a key target high value-added opportunity for services vendors. Banking and finance community investing up to 15% of non-interest costs on IT.

Tendency for large financial institutions and consortia to develop their own networks, eg the LINK and MATRIX networks.

Opportunities exist for public service VADS eg BT's PSS service.

EFT is the most immature of the VADS applications. Growth of EFT and EFT/POS is inhibited by conflicts of commercial interest between the banks, credit card companies and retailers.

Although the big banks have declared their commitment to national EFTPOS, at the same time they have continued to develop and expand their own autonomous EFTPOS networks.

Aim of national EFTPOS network was to develop a uniform, national EFTPOS system with an open and competitive membership framework with a wide card base, acceptable through a single retail terminal at the point of sale.

However the tight schedule for meeting EFTPOS UK's membership requirements (+£250,000) makes it difficult for smaller banks and building societies. It could win EFTPOS business by launching a scheme through shared ATM networks, Matrix and Link. The latter already has an EFTPOS scheme running in cooperation with BP Oil or they could seek sponsorship from existing EFTPOS UK members.

The inaugural service is to go live in early '89 (3 test sites/2000 terminals) this service will pave the way for the eventual development of the national network into a competitive national system.

For those with pilot EFTPOS schemes, the objective will be to achieve as wide a card acceptance as possible through the adoption of EFTPOS UK standards. For those without who intend to be terminal sponsors - the thrust will be to achieve high retailer acceptance of their particular systems.



MIDLAND has invested considerable funds in its Midland TRANSACT EFTPOS systems: By end of 1988 - £20-£25 million. Holds the most varied EFTPOS portfolio: Include SPEEDLINE, recently announced deal with Compower to include Midland Bank in its Midnight Express project, (access to over 1,000 petrol retailers).

BARCLAYS - Connect (June 87): Linked with Visa network and involves over 167,000 retailers in the UK (5 million outlets worldwide). Also runs PDQ (online data capture and authorisation network). Installing 100 terminals a week. Barclaycard bought out Anglia pilot EFTPOS scheme, Paypoint.

NATWEST - Expanding its own national EFTPOS programme. Primary EFTPOS experiments are all offline; PISCES (petrol retailing pilot) offering credit card data collection, validation and reporting through Centre-file. STREAMLINE, is being piloted at 25 petrol stations and at one Waitrose supermarket.

LLOYDS - £500,000 on its Peterborough pilot. Works with framework of EFTPOS UK. Pilot scheme, CARDPOINT, running since March 87, incorporates 54 terminals in 42 outlets spread over a wide user base. Over 150,000 transactions.

FTS (FUNDS TRANSFER SHARING Ltd) has announced a LINK pilot scheme with BP service stations in the SE England. The scheme will operate at 23 BP service stations: Any LINK card holder can use the card to pay/obtain cash.

In the next 5 years six of the UK's leading banks and building societies will spend around £4 billion on automating their businesses.

High street banks are concentrating their spending power on replacing existing outdated machines with state of the art computer systems and on installing telecomms networks to link bank offices around the world.

Although much of the IT spends will go on new telecomms networks and computer systems, both the building societies and the banks have set cash aside for the automation for their retail banking branch operations.

Recent announcements by both the NatWest and Lloyds mean all key four clearing banks have a stake in home banking pilots as well as in cashless shopping EFTPOS schemes and business banking services.

### LLOYDS

- Bankside/Peterborough: Computer Processing Operations.
- Kit: IBM, Tandem for EFTPOS/high volume cheques through CHAPS.
- IBM mainframes support its ATM system.
- Branches linked through its SNA-based nationwide telecomms network MESH.
- Brought banking services into the home with £1 million Tandem-based HOMEBANK. 1,000 terminals already in customers' homes.

## MIDLAND

- Unisys (four mainframes) - working on linking them together.
- Brent Computer Centre.
- Projects under development: Retail customer information system, using Unisys mainframes with Link software/delivered through IBM's PS2s, and its Digital Equipment VAX and Fastrak - distributed corporate banking system Orb it, which it plans to extend across all its area offices.
- No plans to change its mix of Nixdorf and NCR ATMs.
- Work underway on its Mint venture, the ATM reciprocity agreement with TSB and NatWest.

## NATWEST

- Plans a new computer centre to control its retail operations - operator free/remote to monitor the 3200 strong high street branch network.
- To spend £1 billion on technology up to 1992.
- Embarked on a new comms network.
- Inter innovation cash dispensers to be joined by interactive videos - the bank's IBM/Reuters-based share dealing service to be extended.
- BANKLINE - Business-business dial-up service.

## BARCLAYS

- 5 year £1.5 billion spend on technology.
- More power to its Northern Telecom supplied retail branch network (to provide a backbone for NCR workstations in the branches).
- Global offices to be girdled by an improved network.
- IBM-based share dealing service (Barclayshare) and a cash management system (Barcam).
- Barclays' Cashless shopping EFT-POS business stake will use PDQ terminals and its Connect card and it plans to play a major part in the nationwide EFTPOS inaugural scheme.

## SWIFT

Society for Worldwide Interbank Financial Telecommunications (SWIFT) was established in 1973 to provide a number of specialised services relating to interbank financial transactions (EFT and message services). Messages of up to 4000 characters can be sent through the system at a rate five times faster than that of telex.

SWIFT/CHAPS: Swift remains preferred payment message medium in most countries (except Middle East) and dominates operating standards which govern international bank to bank transactions. Clearing systems (CHIPS-New York, CHAPS-London, BITS-Australia) are closely linked into SWIFT. (CHAPS developed using SWIFT Message and security standards.)

CHAPS making its mark on the sterling clearing scene. CHAPS volume is growing and whilst town clearing may not be diminishing, no longer increasing.



Citibank first non-UK bank to act as a settlement bank on CHAPS (9/86). Sixth largest volume user of CHAPS. The clearing banks had a head start:

Midland accounts for over 40% of volume cleared through CHAPS. Pattern established in New York with CHIPS could be repeated in the UK with the Big 4 taking the lion's share of the market and the major foreign banks like Citibank out-performing the smaller indigenous members.

UK Swift user group looks after a total of 41 banks, covering 18 UK founder members and 27 other, mainly random-based subsidiaries of overseas banks.

SWIFT is regarded as a neutral network carrier because it is not an EFT system. Payments among SWIFT banks are generated at either end of the message and the regulations of the control banks are involved at that stage.

INS (International Net Settlement facility) due to be launched in 6/88 - expected to free about 20% of the paper shuffling currently being handled.

EUROCLEAR, a clearing house for bank transfers, was added in 1982, and CEDEL, an international clearing-house, was later added for securities transactions.

(UK: 38 member banks, 136 banks connected, 13 million transactions.)

EFT from customers' bank accounts to retailers with transaction authorised by debit card at the point of sale.

ICL predicts electronic checkouts will have replaced 8/10 conventional tills in large stores by 1993. However, ICL's survey "Retailing Tomorrow" suggests that 6/10 shopkeepers believe there is no consumer demand for EFTPOS.

More than 25% of payments could be made this way by 1991 (Banking Information Service).

National EFTPOS to be run by EFTPOS UK (11 member banks). many companies inside and outside EFTPOS UK have their own private EFTPOS experiments.

EFTPOS system: three functions

- Verify customer identity
- Authorise payment
- Transmit payment details to bank/building society.

Online/Offline (favoured by banks: more secure).

TSB (bank) update accounts instantly.

Most other banks do it regularly every 12/24 hours - on own private networks.

APACS (Association for Payment Clearing Services): Three new members - Abbey National, Halifax and Yorkshire Bank. First new members in APACS since set up in 12/85 as umbrella body for the payments industry to manage the development of payment clearing services and to oversee money transmission in the UK. All new members also join BACS Ltd, the company which operates bulk electronic clearing in the UK.



EFTPOS (UK) is a company under the umbrella of the Association for Payment Clearing Services (APACS).

APACS runs two other computerised clearing systems (separate from EFTPOS)

MATRIX (the ATM shared network of building societies) on target for 1988 membership to the APACS' electronic clearing club BACS. Unlike LINK, a rival ATM network which launched its own EFTPOS retail pilots, Matrix does not have an existing EFTPOS experiment.

Half the credit/debit files which BACS handles each day come in on disk/tape, the rest come in over BT or Mercury communication links on the Bacstel service. But Bacstel is predominantly used by small businesses and only represents 10% of the volume of transactions.

So BACS has started an EDI trial with INS and Istel to offer BACS services over Vans.

- BACS: Accounted for 22% of all UK transactions in 1986.
- CHAPS: Deals with large value payments to be cleared in a single day.

Off-line EFTPOS: Pisces (Centrefile)  
Midnight Express (Compower)

Both use BT's "midnight window" (24 - 6 ) to phone up petrol stations to gather details of previous day's transactions.

Pisces used by NatWest, Midnight Express by Barclays - extends to British Rail, hotels/restaurants.

Speedline (Midland) used by high street retailers.

On-line EFTPOS: Link (24 institutions, Abbey, Co-op, Nationwide, etc)  
Cardpoint (Lloyds)  
PDQ (Barclays).

EFTPOS: Retail: 99% said planned to use EFTPOS card systems, 72% of UK respondents said they were planning to introduce credit, debit or their own cards, according to a survey commissioned by Barclays.

Banks with off-line approach likely to move to on-line systems: ability to control customers at terminals perceived as the key.

Key building societies are to give a collective push to UK EFTPOS next month by setting up their own scheme.

It will mark the first major EFTPOS action by financial institutions outside of the big High Street banking groups which have dominated UK EFTPOS initiatives.

Building societies such as Abbey National and Nationwide and retail bank Girobank, presently organised under the Link ATM sharing banner are to set up cashless shopping schemes following talks with big retailing groups.

The Link company is to install computerised terminals, believed to be supplied by Scottish supplier Fortronic, in stores scattered around the Country. The terminals are to accept all debit cash cards marketed by Link members.

John Hardy, chairman of Link Interchange Network, the ATM switching company owned by its members, said: "The schemes will give a push to national EFTPOS. They are not throw away and they will be a part of the national efforts."

He added that the Link initiative would not interfere with individual EFTPOS initiatives organised by the banks.

Computer power behind Link EFTPOS to be centred on its existing Tandem-based switch for inter-ATM sharing traffic but EFTPOS transactions from the shops are to pass through members' computers first.

The impact of the planned business merger between Link member Nationwide and Anglia, a member of rival ATM collective, Matrix, on the scheme is still to be resolved. Anglia may well be included after negotiations.

Anglia is believed to have set aside Fortronic terminals, used in a separate EFTPOS pilot, for the Link EFTPOS initiative following its Nationwide merger.

## ATM

- (6/87)      OFT proposes that a statutory code should be introduced covering ATMs, recommending that all ATMs should be able to produce receipts, liability on lost or stolen ATM cards should be brought in line with that on credit cards.

NATWEST: Purchased ATM software (£750,000) from CAP, BASE24 package will enable NatWest to support MINT, a joining ATM network agreement between NatWest, Midland and TSB.

Mint (with TSB/NatWest): Largest ATM network in the world.

NDC CASH MANAGEMENT EXCHANGE: Thirty European banks contribute to NDC in addition to the US banks and their branches in Europe.

Braid Systems has extended its messaging capability with Banker II, a generic forms handling and communications package. (Manages EFT via PSTN over public/private networks, telex or X25.)

First of a set of EDI application suites and forms part of Braid's new messaging products portfolio.

New packages incorporate an advanced structured messaging and automated test key function and support a complete library of SWIFT and 150 funds transfer message formats.



#### 4 Principal Agent Transactions

Insurance: Mediat (BT), Unidex (IBM), Inview (Istel), Delegate (Prestel).

DEC's network aims to speed up conveyancing by building electronic links between solicitors and local authorities, reducing search times to three days. DEC and computer consultancy Cipfa Services have devised a way for local authorities to join the network without having to pay. Cipfa hopes that 50 of the 400 authorities in England and Wales will be doing this within two years.

Britannia Building Society has ordered Traid Williams' Insurance Services Information System (ISIS) for £50,000. To administer traditional broking insurance business and own brand delegated authority insurance.

Barclays to add a cashflow facility to its Exchange Rate Agreement (ERA) from 1/12, enabling user to link an ERA to underlying cashflows resulting from exchange rate movements.

#### 5 Reservations/Bookings

BT: OAG, ABC World Airways Guide  
Provicon (on-line booking service on Prestel)  
Travinet (UK).

##### FASTRAK

Runs on Midland Bank network, set up in 1984 to provide a videotex service to the travel industry but has since diversified to offer VADS to non-travel sectors such as the financial services and motor industry.

In 1987 it achieved 200% growth with a 400% increase in traffic over its network. Similar growth should be anticipated this year with Fastrak having received a £10m boost from Midland to expand its network. (See section on MDNS.)

The airline reservation systems business is becoming dominated by the cross shareholding and partnership agreements between consortia like ABACUS and AMADEUS and TNA, North West Airlines and other systems.

#### 6 Electronic Shopping

The retail sector is emerging as a major opportunity as EPOS systems are being linked with EFT systems. However, retailers who have taken part in electronic shopping schemes have been unhappy with their experience. Ninety six percent of retailers taking part in the initial EFTPOS schemes run by the clearing banks suffered equipment breakdowns.



Advantages: Less cheque and cash handling speed up the check-out process.

Disadvantages: Customers did not use the equipment.

ICL predicts that electronic check-outs will have replaced eight out of ten conventional tills in large stores by 1993.

However, 6 out of 10 shopkeepers believe there is no consumer demand for EFTPOS.

## F APPLICATION PROCESSING

### 1 Sector Assessment

- This sector concerns primarily the market historically referred to as 'computer bureaux' but now more properly called processing services.
- INPUT estimates that within the United Kingdom this market achieved revenues of approximately £280 million during 1987. INPUT would further estimate that about £180 million of this was represented by on-line services, the remainder being batch oriented.
- This total excludes processing services (eg OLIS, EDI, etc) separately defined in other sections of this market analysis.
- INPUT would expect to see little or no growth in this sector overall as applications migrate into other delivery modes, for example EDI.
- This sector has seen a major reaction towards the migration of applications to low cost in-house systems. Vendors have had to seek innovative service opportunities in order to maintain or develop their business base.
- However the market for traditional processing services has remained buoyant in niche market areas, for example, ADP in payroll and GEISCO in financial settlement and decision support systems (cash and treasury management).
- There will thus continue to be specialist opportunities for services vendors to provide processing services which are related to other types of service (eg credit factoring) or which offer a significant opportunity to solve a service problem, the key example of which is of course payroll processing.
- There will be increasing opportunities for vendors with extensive communications capability and large dispersed organisational infrastructures to compete with internal DP departments on an equal status and meet the challenges of security, loss of control and the need to optimise company-wide IT investments.
- This again reflects how the divisions between data processing and the general operations of a company are blurring.
- The key issue for vendors operating in this sector is the selection of profitable and viable niches. Sound marketing arguments for the service must be found, often these will not relate to DP as such but will be for a clear business purpose (problem solution) and the data processing element will be incidental.

## 2      Leading Vendors

- Leading vendors in the UK applications processing market include the following organisations:
  - IBM-BNS
  - DATASOLVE
  - ISTEEL
  - GEISCO
  - NMW
  - CENTREFILE
  - CMG
- It is interesting to note that nearly all these vendors are involved in other sectors of the Electronic Information and Communications Services market as defined in this report.











